

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 26 APR 2004

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Applicant's or agent's file reference BP105391/EH		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FI 03/00008	International filing date (day/month/year) 08.01.2003	Priority date (day/month/year) 09.01.2002	
International Patent Classification (IPC) or both national classification and IPC B01D9/00			
Applicant BOREALIS TECHNOLOGY OY et al.			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
 - ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 06.08.2003	Date of completion of this report 23.04.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Hilt, D Telephone No. +31 70 340-4259



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/FI 03/00008**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-3 as originally filed

Claims, Numbers

1-10 filed with telefax on 04.02.2004

Drawings, Sheets

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to : report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The present application refers to a filter cartridge with a contaminant containment chamber defined between the sidewall and an outer side of the filter media. **The closest prior art document D1 is:**
EP-B1-0 655 073 (cited by the applicant)

2. The subject-matter of claim 1 **differs from closest prior art document D1** in that the chamber is provided with an acoustic generator generating a sound with the intensity of at least 100 dB.

The problem to be solved by the present invention may therefore be regarded as to loosen the carrier from the walls of the chamber.

No hint can be found in the available prior art that would have led the skilled man to modify the chamber for the crystallization of solid catalyst carrier as disclosed in document D1 towards a chamber of the present invention.

Moreover the solution of claim 1 can not be seen as being obvious.

The subject-matter of claim 1 is therefore novel and involves an inventive step (Article 33(1,2,3) PCT).

3. Independent method claims 3,8,9

As apparatus claim 1 is new and non-obvious, the method claims 3,8,9 for the use of that apparatus is also new and non-obvious.

4. Dependent apparatus and method claims 2,4-7,9

Claims 2,4-7,9 are respectively dependent on claim 1, 3, 8 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Claims

1. Chamber for the crystallization of solid catalyst carrier, characterized in that the chamber is provided with an acoustic generator (9) generating a sound with the intensity of at least 100 dB for loosening the carrier from the walls of the chamber.
- 5 2. Chamber according to claim 1, wherein the chamber comprises a top wall and the acoustic generator (9) is mounted in the top wall.
3. Method for the preparation of solid catalyst carrier, in which method the carrier is formed in a chamber, characterized in that the inside of the chamber is subjected to a sound, the intensity of which is at least 100 dB, generated by an acoustic
10 generator (9) for loosening the carrier from the walls of the chamber.
4. Method according to claim 3, wherein the intensity of the sound is at least 120 dB, and preferably at least 130 dB.
5. Method according to claim 3 or 4, wherein the frequency of the sound is over 5 Hz and below 20000 Hz, suitably below 10000 Hz, preferably 20 to 5000 Hz, more
15 preferably 100 to 1000 Hz, and most preferably 400 to 600 Hz.
6. Method according to any of claims 3 to 5, wherein the duration of the sound is 1 to 10 seconds, preferably 3 to 7 seconds.
7. Method according to any of claims 3 to 6, wherein the sound is generated periodically, such as at intervals of 0.2 to 2 minutes, preferably at intervals 0.3 to 0.7
20 minutes.
8. Method for removing crystallized solid catalyst carrier from the walls of a chamber, characterized in that the inside of the chamber is subjected to a sound, the intensity of which is at least 100 dB, generated by an acoustic generator (9) for loosening the carrier from the chamber.
- 25 9. Method according to claim 8, wherein the carrier is removed continuously from the chamber.
10. Use of an acoustic generator (9) generating a sound with the intensity of at least 100 dB for loosening crystallized solid catalyst carrier from the walls of a chamber.